ABSTRACT

There has been concern that whether pyrethroid tolerance or resistance will be selected in anophelines and other mosquitoes through the use of pyrethroid-impregnated bed nets. Pieces of nylon netting impregnated with different concentrations of lambda-cyhalothrin, permethrin and deltamethrin were used in order to investigate the pyrethroid tolerance or resistance in adults of *Aedes aegypti* and *Anopheles maculatus*. The WHO susceptibility test kits were lined inside with impregnated pieces of nylon netting and mosquitoes were exposed for the period of 30 second to 4 minutes and mortality was scored after 24 hours observation period. The percentage mortality of the mosquitoes varied with the concentrations of pyrethroids. In the preliminary experiments, *Aedes aegypti* was found susceptible to lambda-cyhalothrin and permethrin at the dosages of 0.02 g/m^2 and 0.2 g/m^2 respectively. Similarly, *Anopheles maculatus* was also found susceptible to permethrin (0.15 g/m^2), and this species showed 100% mortality even at the lower dosages (0.005 g/m^2 and 0.01 g/m^2) of lambda-cyhalothrin. However, both of the mosquito species yielded negligible mortality with deltamethrin.

For the assessment of increased tolerance level in each generation of *Aedes aegypti* and *Anopheles maculatus*, LT_{50} (lethal time required to kill 50% of the mosquitoes) was calculated from the mortality data and compared with parental strain. The exposure of 9 generations of *Aedes aegypti* with lambda-cyhalothrin produced 2.6-fold tolerance. Similarly, exposure of 8 generations of *Aedes aegypti* with permethrin produced 2.8-fold tolerance, whereas *Anopheles maculatus* showed 1.4-

fold tolerance to permethrin. The pattern of increased tolerance levels in both of the mosquito species to lambda-cyhalothrin and permethrin indicated no evidence for the evolution of pyrethroid resistance. A further study of this type monitoring LC_{50} (lethal concentration required to kill 50% of the mosquitoes) is highly desirable so as to give some clues in the selection for pyrethroid resistance.